

(22) 100 mL  $H_2O \Rightarrow pH = 7$

• Añade 1 mL  $HCl$  5M  $\Rightarrow V_D = 101$  mL

$$n' H^+ = 0'001 \cdot 5 = 0'005 \text{ moles } H^+$$

$$[H^+] = \frac{0'005}{0'101} = 0'0495 M; \quad pH = 1'3$$

• Añade 5 mL  $NaOH$  5M  $\Rightarrow V_D = 106$  mL

$$n' OH^- = 0'005 \cdot 5 = 0'025 \text{ moles } OH^-$$

$n' H^+ = 0'005$  moles ya existentes en la disolución

Se neutralizan 0'005, Sobran 0'020 moles  $OH^-$

$$[OH^-] = \frac{0'020}{0'106} = 0'189; \quad pOH = 0'7; \quad pH = 13'3$$

• Añade 106 mL de  $H_2O \Rightarrow V_D = 212$  mL.

$$[OH^-] = \frac{0'020}{0'212} = 0'094 M; \quad pOH = 1; \quad pH = 13$$

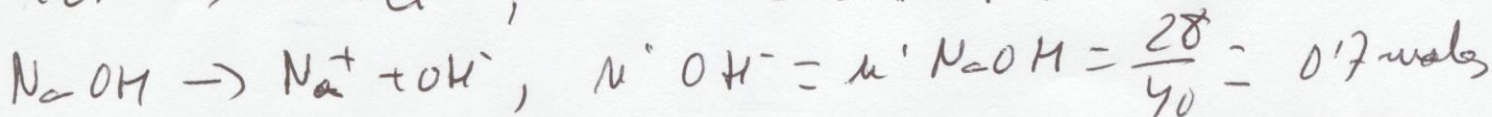
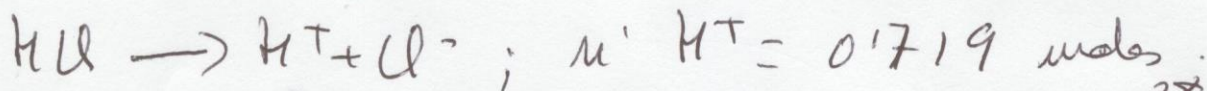
(24)

$HCl$

$V_D = 500$  mL  
 $d = 1'059$  g/mL  
 5%

$$m_D = 525 \text{ g}$$

$$525 \text{ g D} \cdot \frac{5 \text{ g S}}{100 \text{ g D}} \cdot \frac{1 \text{ mol}}{36'5 \text{ g}} = 0'719 \text{ moles } HCl$$



Se neutralizan 0'7 moles, Sobran  $\Rightarrow 0'019$  moles  $H^+$

$$[H^+] = \frac{0'019}{0'5} = 0'038 M; \quad pH = 1'42$$